



**pennsylvania**  
State Employees' Retirement System

## **2018 Financial Highlights**

*Service and stewardship since 1923.*

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# Changes in Fiduciary Net Position

(\$ millions)

	2018	2017	Change	
			\$	%
Net Position - Beginning	\$ 29,405	\$ 26,388		
Contributions	2,443	2,281	162	7%
Net Investment (Loss)/ Income	(1,442)	4,066	(5,508)	-135%
Less:				
Benefit Payments and Refunds	3,395	3,304	91	3%
Administrative Expenses	26	26	-	0%
Cumulative Effect of Change in Accounting Principle <sup>1/</sup>	(48)	-	(48)	NA
Net Increase	(2,468)	3,017		
Net Position - End of Year	\$ 26,937	\$ 29,405		

<sup>1/</sup>Reflects changes due to adoption of GASB 75 - Other Post Employment Benefit Obligations

# Investment Valuation Breakdown

As of December 31, 2018

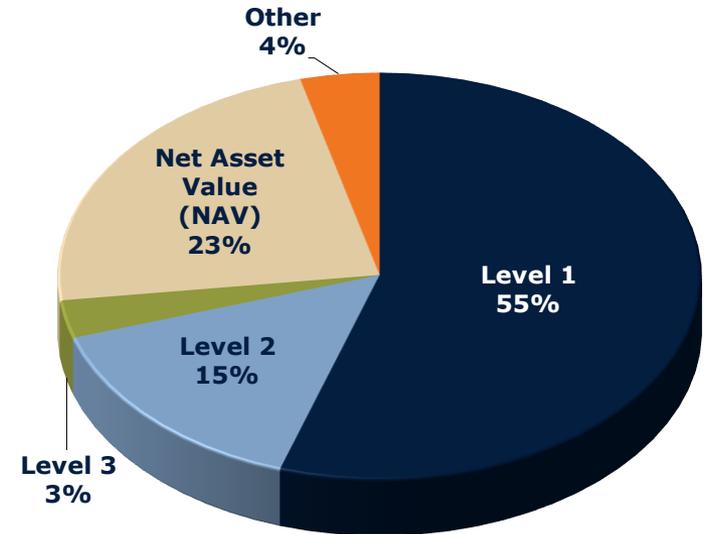
Investments are the most significant component of SERS assets totaling approximately \$27 billion.

SERS reports most assets at fair value based on three levels of inputs:

- **Level 1 inputs:** are quoted prices in active markets for identical assets or liabilities.
- **Level 2 inputs:** are quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or other than quoted prices that are observable.
- **Level 3 inputs:** are unobservable inputs used to measure fair value if relevant observable inputs are not available for the asset or liability at the reporting date.

Most private equity, real estate, and hedge funds are valued at net asset value (NAV), which is SERS' ownership interest in the total fund. NAV approximates fair value.

SERS' portion of the Pennsylvania Treasury's Short-Term Investment Fund (STIF) is valued at cost plus accrued interest, which approximates fair value.



# Contribution Highlights

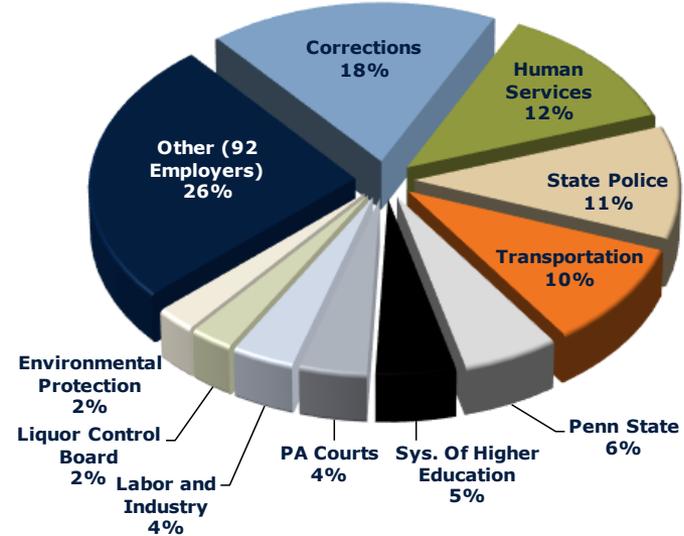
For the Year Ended December 31, 2018

<b>Employer</b>	<b>Employer Contributions (\$ millions)</b>	<b>Active Members<sup>1/</sup></b>
Corrections	\$ 377	15,610
Human Services	255	16,396
State Police	223	6,353
Transportation	201	<b>12,088</b>
Penn State	115	6,772
Sys. Of Higher Education	96	4,997
PA Courts	81	1,946
Labor and Industry	75	<b>4,066</b>
Liquor Control Board	52	<b>4,471</b>
Environmental Protection	49	2,371
Other (92 Employers)	525	<b>27,937</b>
<b>Total Employer</b>	<b>\$ 2,049</b>	<b>103,007</b>

	<b>Member Contributions (\$ millions)</b>
All 102 Employers	\$ 394
<b>Total Contributions</b>	<b>\$ 2,443</b>

<sup>1/</sup>Bolded figures represent a decrease from prior year.

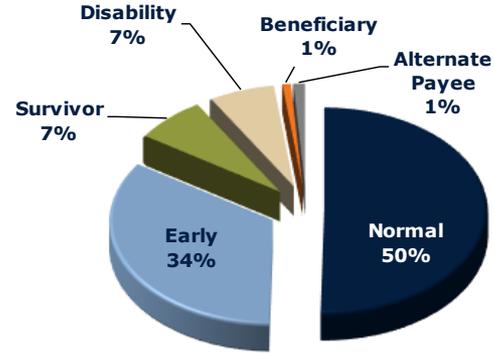
**Top 10 Contributing Employers as a Percent of Total Contribution Dollars**



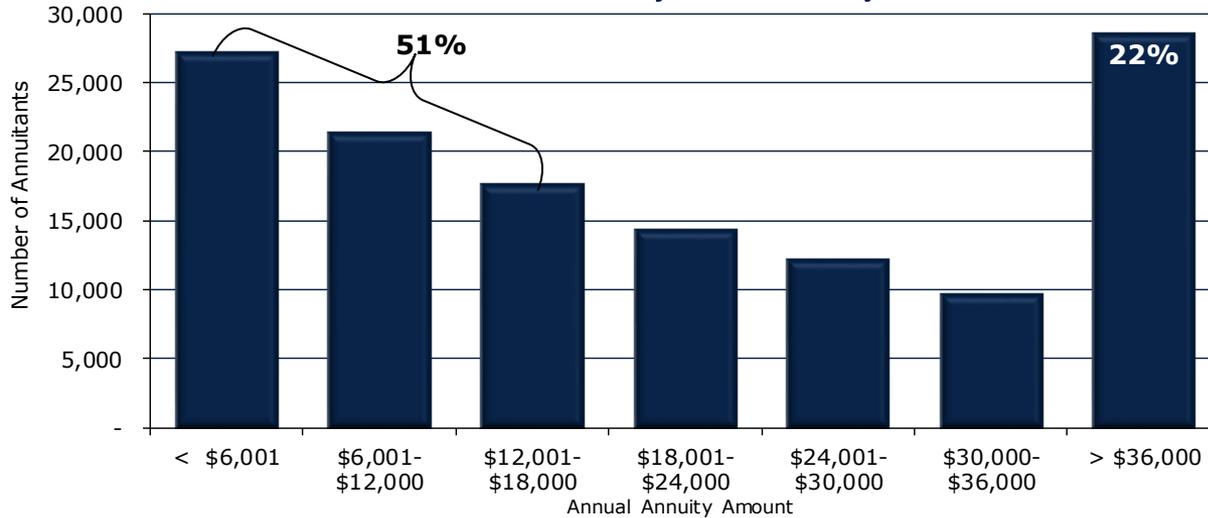
# Annuity Payroll

As of December 31, 2018

Retirement Member Types	Number of Annuitants	Average Annual Annuity
Normal	65,968	\$ 28,880
Early	44,389	18,096
Survivor	9,414	13,964
Disability	8,620	15,755
Beneficiary	1,116	12,052
Alternate Payee	1,500	10,464
<b>Total</b>	<b>131,007</b>	<b>22,937</b>



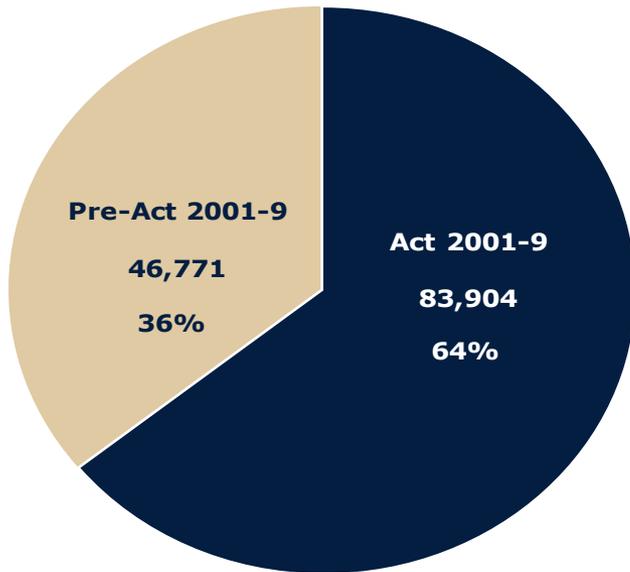
Number of Annuitants by Annual Annuity Size



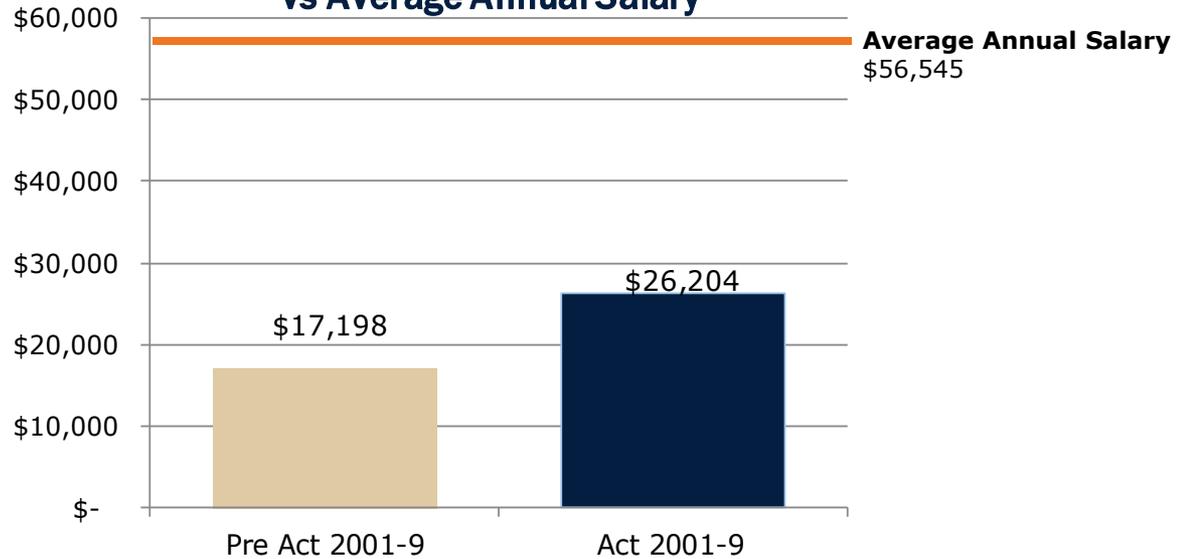
# Annuitant Profile

Number of Annuitants by Major Legislative Provision and Average Annual Pension<sup>1/</sup>

**2018 Annuitants**  
130,675



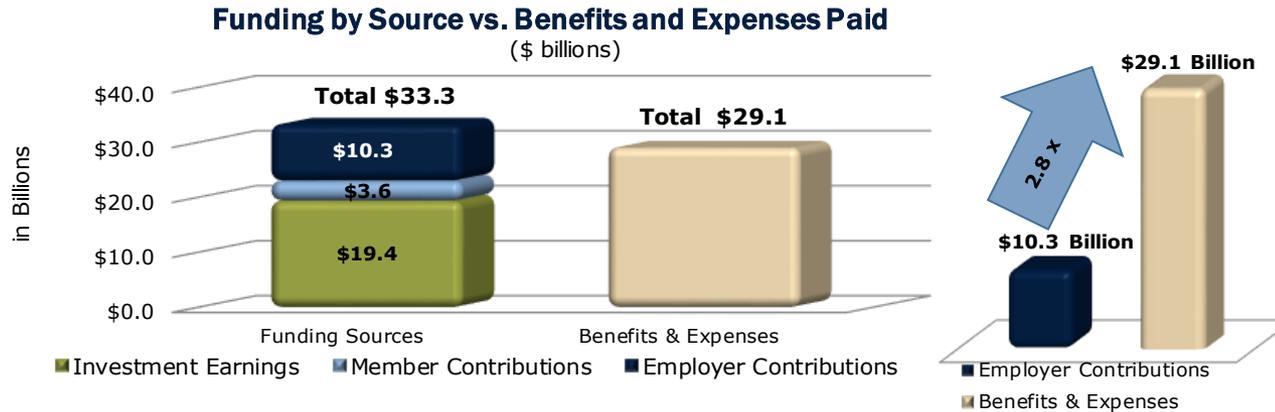
**2018 Annual Pension Amount vs Average Annual Salary**



<sup>1/</sup> Does not include post Act 2010-120, which is 332 annuitants with average pension of \$470.



# 10 Year Funding and Payment Activity



## Statement of Change Activity By Year (\$ millions)

Calendar Year	Contributions			Investment Earnings	Benefits and Expenses	Fair Value
	Employer	Member	Total			
2018	\$2,049	\$394	\$2,443	(\$1,442)	\$(3,421)	\$26,937 <sup>1/</sup>
2017	1,898	383	2,281	4,066	(3,330)	29,405
2016	1,622	375	1,997	1,587	(3,251)	26,388
2015	1,360	372	1,732	88	(3,103)	26,055
2014	1,084	366	1,450	1,462	(2,968)	27,338
2013	795	352	1,147	3,724	(2,866)	27,394
2012	566	348	914	2,794	(2,696)	25,389
2011	392	351	743	480	(2,732)	24,377
2010	273	349	622	3,076	(2,474)	25,886
2009	253	349	602	3,561	(2,297)	24,662
<b>10 Yr. Total</b>	<b>\$10,292</b>	<b>\$3,639</b>	<b>\$13,931</b>	<b>\$19,396</b>	<b>(\$29,138)</b>	

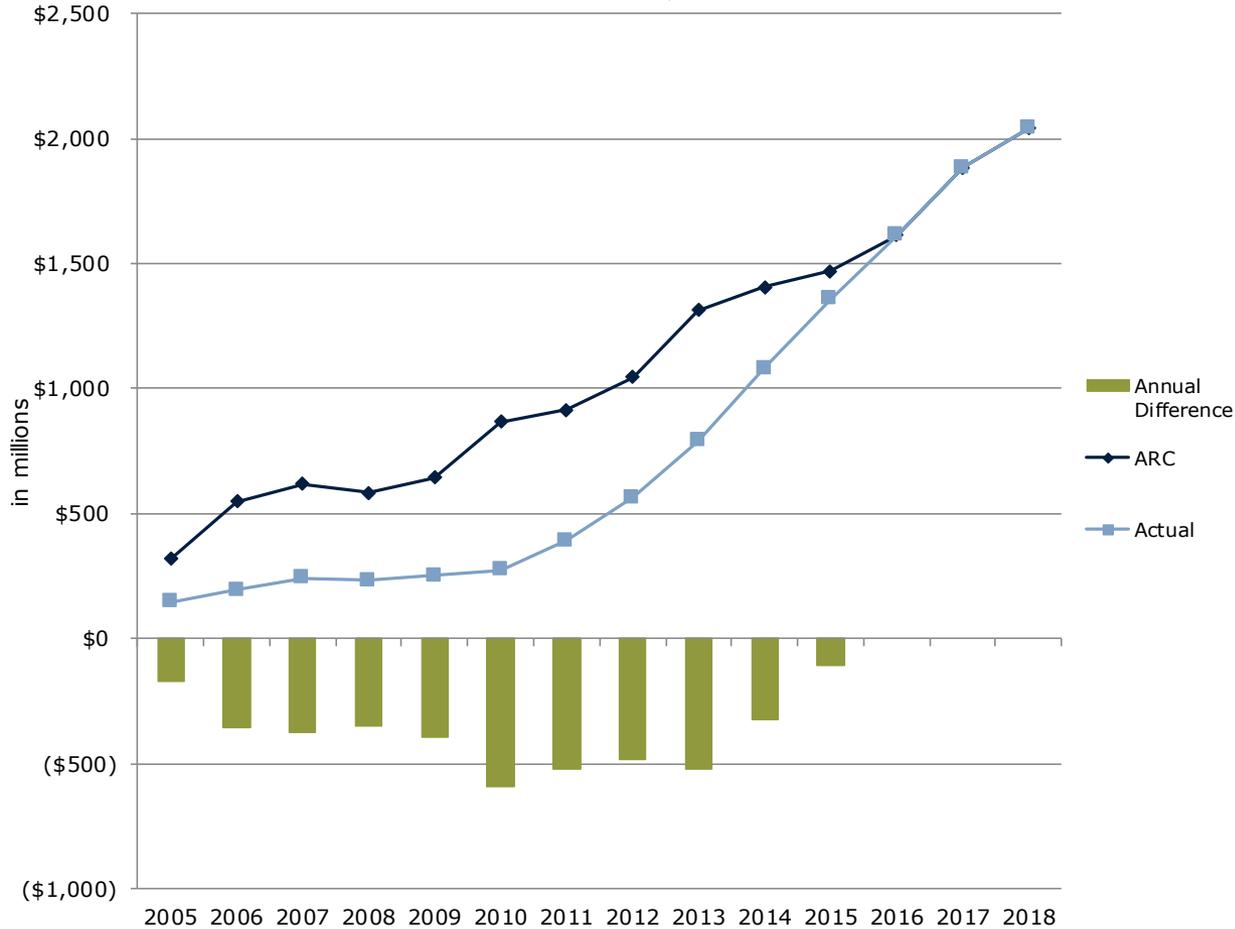
Annotations: 48.9% Increase (between 2009 and 2018 Expenses), 9.2% Increase (between 2009 and 2018 Fair Value), 12.7% (between 2018 Expenses and Fair Value), 9.3% (between 2009 Expenses and Fair Value).

<sup>1/</sup>Includes \$48 million adjustment for cumulative effect of change in accounting principle related to GASB 75 - Other Post Employment Benefit Obligations

# Contributions

## Annual Required Contributions (ARC)<sup>1/</sup> vs. Actual Contributions

Cumulative Difference = \$4.2 Billion



<sup>1/</sup>ARC calculation is based on methods established by General Accounting Standards Board (GASB) 25, which was superseded by GASB 67 in 2014.

# Projected Funding Levels & Contribution Rates<sup>1/</sup>

(\$ millions)

Valuation Year Ended Dec 31	Funded Ratio	Fiscal Year	Funding Payroll	Employer Normal Cost Rate	Unfunded Liability Rate	Final Employer Contribution Rate <sup>3/</sup>	Employer Contribution Dollars
2018	56.0	19/20	6,469	1.25	32.28	33.53	2,169
2019 <sup>2/,3/</sup>	55.7	20/21	6,657	1.25	32.35	33.60	2,237
2020	56.2	21/22	6,850	1.25	31.97	33.22	2,276
2021 <sup>4/</sup>	61.5	22/23	7,049	8.79	26.11	34.90	2,460
2022	61.3	23/24	7,253	8.54	26.24	34.78	2,523
2023	62.5	24/25	7,463	8.30	25.59	33.89	2,529
2024	63.8	25/26	7,680	8.06	24.94	33.00	2,534
2025	65.2	26/27	7,903	7.84	24.27	32.11	2,538
2026	66.6	27/28	8,132	7.63	23.60	31.23	2,540
2027	68.0	28/29	8,368	7.43	22.94	30.37	2,541
2028	69.5	29/30	8,610	7.24	22.29	29.53	2,543
2029	71.0	30/31	8,860	7.06	21.66	28.72	2,545

<sup>1/</sup>Other than funded ratio, rates and values are for the fiscal year beginning July 1 following the funding valuation year and do not include the Benefits Completion Plan contribution. All information on this page is based on statutory funding requirements.

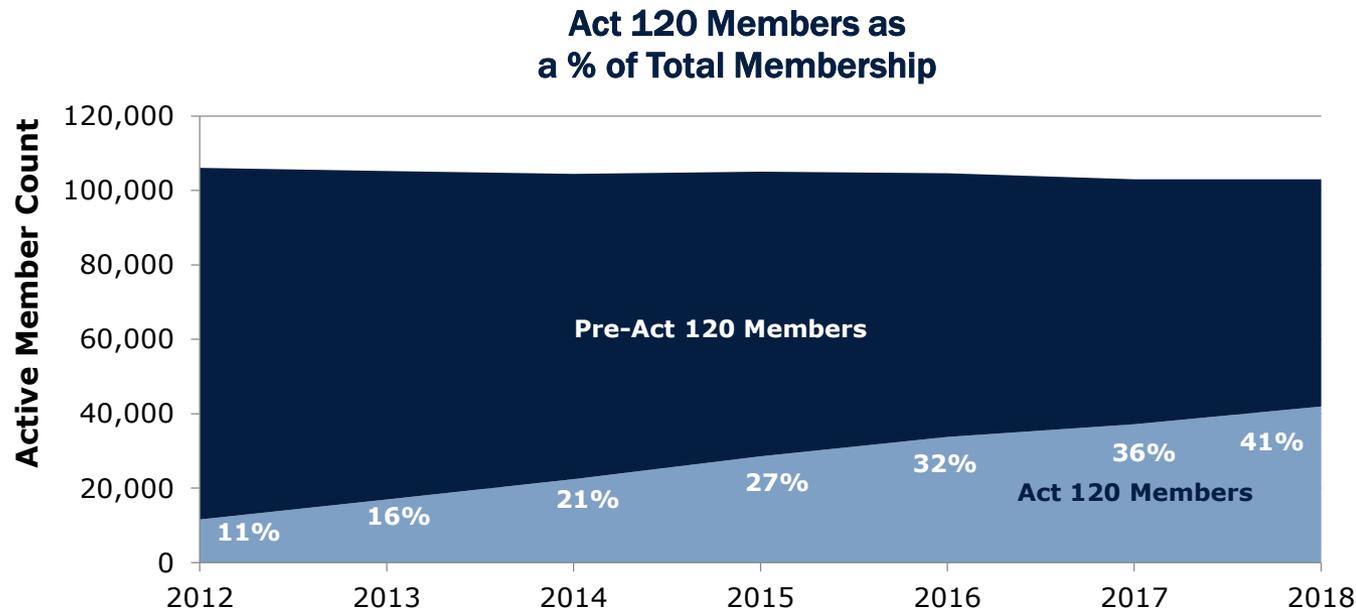
<sup>2/</sup>Numbers are projected from 2019-2029 based on 2018 actuarial funding valuation.

<sup>3/</sup>Act 2017-5 amended the Retirement Code to add two hybrid Defined Benefit (DB)/Defined Contribution (DC) plans and a DC-only plan effective January 1, 2019.

<sup>4/</sup>Act 2017-5 amended the Retirement Code to change the funding method to traditional entry age.

# Active Member Profile

- As of **December 31, 2018**, total active membership was 103,007.
- Act 2010-120 (Act 120) membership totaled 41,894, or 41% of total active membership.
- Of the total Act 120 members, 6,224 or 15% of Act 120 membership have selected the higher 2.5% benefit accrual, or class A-4 status.



# GASB 67

In 2014, SERS implemented the Governmental Accounting Standards Board (GASB) Statement No. 67, which significantly revised financial reporting for pension plans through:

- Standardized actuarial cost method to be used in calculating the total pension liability and net pension liability
- Standardized asset valuation methods and amortization periods
- Stricter guidelines for formulating the discount rate

The reporting standards have no impact on the actual funding of the system, which is based on the actuarial methods and assumptions outlined in the Retirement Code. Below is a comparison of the key results of both valuations.

## Valuation Comparison

As of December 31, 2018  
(\$ millions)

GASB 67 - Reporting Valuation		Funding Valuation	
Total Pension Liability (TPL)	\$ 47,768	Actuarial Accrued Liability (AAL)	\$ 51,782
Fiduciary Net Position	\$ 26,937	Actuarial Value of Assets	\$ 28,989
Net Pension Liability (NPL)	<u>\$ 20,831</u>	Unfunded AAL	<u>\$ 22,793</u>
Fiduciary Net Position/TPL	56.4%	Funded Ratio	56.0%
Fiduciary Net Position/TPL (Prior Year)	63.0%	Funded Ratio (Prior Year)	59.4%

# GASB 68

GASB 68 revised the required pension reporting of employers who are members of the pension system effective for fiscal years ending on or after June 30, 2015.

- Requires employers to report their proportionate share of net pension liability, pension expense, and deferred outflows/inflows related to pensions in the employers' financial statements
- Requires the development of a proportionate share or allocation percent, using a methodology consistent with the manner in which contributions are expected to be made to the plan

**Net Pension Liability and Expense  
as of December 31, 2018**  
(\$ millions)

<b>Employer</b>	<b>Net Pension Liability (NPL)</b>	<b>Proportionate Share of NPL</b>
Corrections	\$3,797	18%
Human Services	2,691	13%
State Police	2,124	10%
Transportation	2,077	10%
Penn State	1,220	6%
Sys. Of Higher Education	1,020	5%
PA Courts	813	4%
Labor and Industry	764	4%
Liquor Control Board	544	3%
Environmental Protection	506	2%
Remaining Employers	5,275	25%
<b>Total Employer</b>	<b>\$20,831</b>	<b>100%</b>

## Plan Highlights

- **Established as part of Act 2017-5**
- **Became active after the year ended December 31, 2018**
- **Received a Commonwealth fiscal year 2018-19 appropriation in June 2018 of \$4.9 million for plan start-up costs**
- **Incurred administrative expenses of \$0.7 million during 2018**

# Changes in Net Position Available for Benefits

(\$ millions)

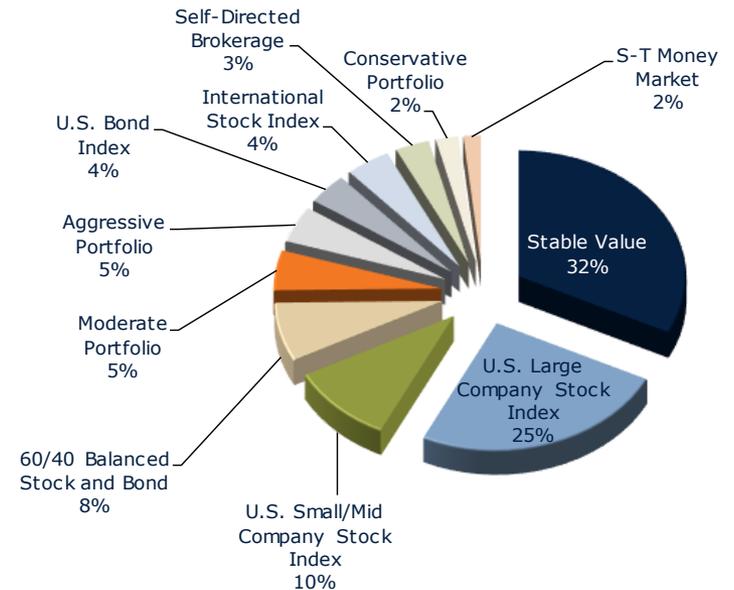
	2018	2017	Change	
			\$	%
Net Position - Beginning	\$ 3,495	\$ 3,166		
Contributions	146	136	10	7%
Net Investment Income	(114)	370	(484)	-131%
Less:				
Benefits, Refunds & Transfers	195	172	23	13%
Third Party and Admin. Expenses	5	5	-	0%
Net Increase	(168)	329		
<b>Net Position - End of Year</b>	<b>\$ 3,327</b>	<b>\$ 3,495</b>		

# Fund Balances & Breakouts

**Fund Balances**  
(\$ millions)

			Allocation %	
	2018	2017	2018	2017
Stable Value	\$1,077	\$1,064	32%	30%
U.S. Large Company Stock Index	829	906	25%	26%
U.S. Small/Mid Company Stock Index	338	383	10%	11%
60/40 Balanced Stock and Bond	249	268	8%	8%
Moderate Portfolio	170	179	5%	5%
Aggressive Portfolio	156	164	5%	5%
International Company Stock Index	131	146	4%	4%
U.S. Bond Index	145	136	4%	4%
Self-Directed Brokerage	110	118	3%	3%
Conservative Portfolio	73	70	2%	2%
S-T Money Market	56	53	2%	2%
<b>Total</b>	<b>\$3,334</b>	<b>\$3,487</b>	<b>100%</b>	<b>100%</b>

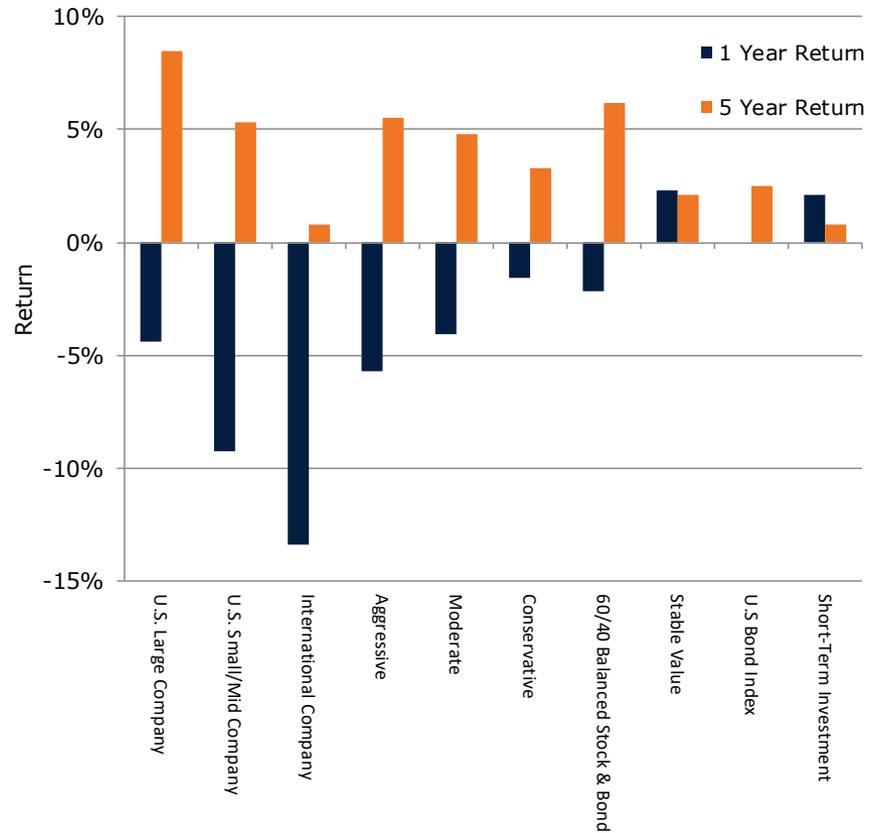
**Allocation as of December 31, 2018**



# Fund Returns<sup>1/</sup>

As of December 31, 2018

FUND	1 Year Return	5 Year Average Return	10 Year Average Return
<b>EQUITY</b>			
U.S. Large Company Stock Index	-4.4%	8.5%	13.2%
U.S. Small/Mid Company Stock Index	-9.3%	5.3%	13.7%
International Company Stock Index	-13.4%	0.8%	6.4%
<b>PROFILE</b>			
Aggressive Portfolio	-5.7%	5.5%	10.2%
Moderate Portfolio	-4.1%	4.8%	8.6%
Conservative Portfolio	-1.6%	3.3%	5.5%
<b>ASSET ALLOCATION</b>			
60/40 Balanced Stock & Bond	-2.2%	6.2%	9.5%
<b>FIXED INCOME</b>			
Stable Value	2.3%	2.1%	2.8%
U.S. Bond Index	0.0%	2.5%	3.4%
<b>CASH</b>			
Short-Term Investment	2.1%	0.8%	0.6%



<sup>1/</sup>Returns shown on a net-of-fee basis

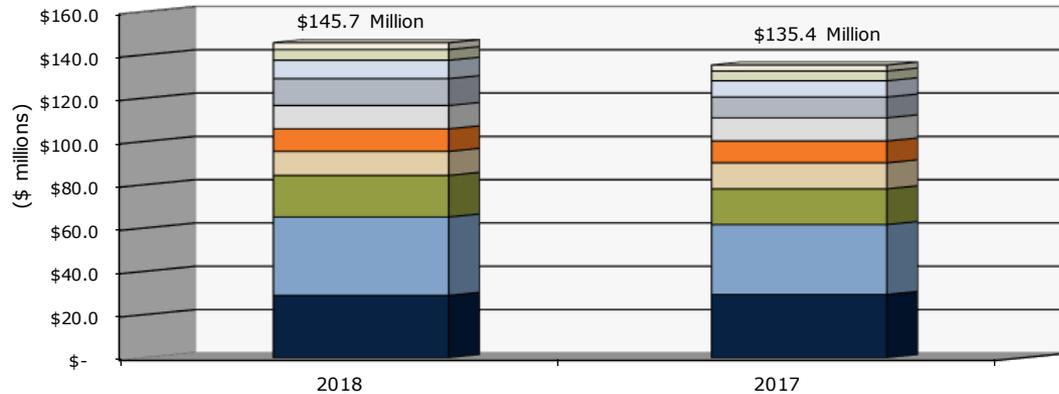
# Contributions by Fund

For the Years Ended December 31, 2018 and 2017

(\$ millions)

Fund	2018	2017	Increase/ (Decrease)	% Change
Stable Value	\$ 29.0	\$ 29.4	\$ (0.4)	-1%
U.S. Large Company Stock Index	36.2	32.3	3.9	12%
U.S. Small/Mid Company Stock Index	19.2	16.5	2.7	16%
Aggressive Portfolio	11.1	12.0	(0.9)	-8%
Moderate Portfolio	10.4	10.1	0.3	3%
60/40 Balanced Stock & Bond	10.8	10.7	0.1	1%
International Company Stock Index	12.4	9.6	2.8	29%
U.S. Bond Index	8.5	7.5	1.0	13%
Short-Term Investment	4.9	4.5	0.4	9%
Conservative Portfolio	3.2	2.8	0.4	14%
<b>Total Contributions</b>	<b>\$ 145.7</b>	<b>\$ 135.4</b>	<b>\$ 10.3</b>	<b>8%</b>

## Annual Contributions



# Contribution Levels

## Contribution Levels

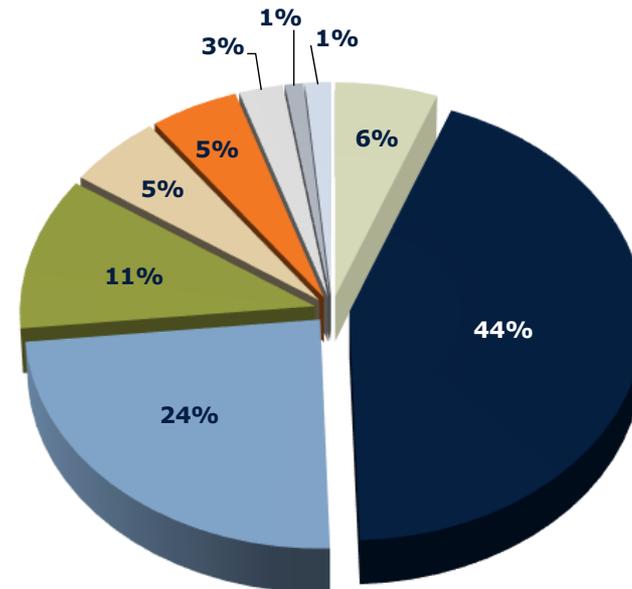
As of December 31, 2018

% of Salary	# of Participants	Percent <sup>1/</sup>	Average Annual Contribution
0.00%	2,033	5.80% ↓	\$ -
0.01% - 2.50%	15,312	43.67% ↓	528
2.51% - 5.00%	8,387	23.92% ↓	2,768
5.01% - 7.50%	3,914	11.16% ↑	4,467
7.51% - 10.00%	1,893	5.40% ↑	5,342
10.01% - 15.00%	1,761	5.02% ↑	6,782
15.01% - 20.00%	875	2.50% ↑	8,759
20.01% - 25.00%	368	1.05% ↑	8,595
25.01% +	516	1.47% ↓	18,660

**Total Active Participants 35,059**

<sup>1/</sup>Arrows represent an increase or decrease from prior year

Percent of Total Participation by Percent of Salary Contributed

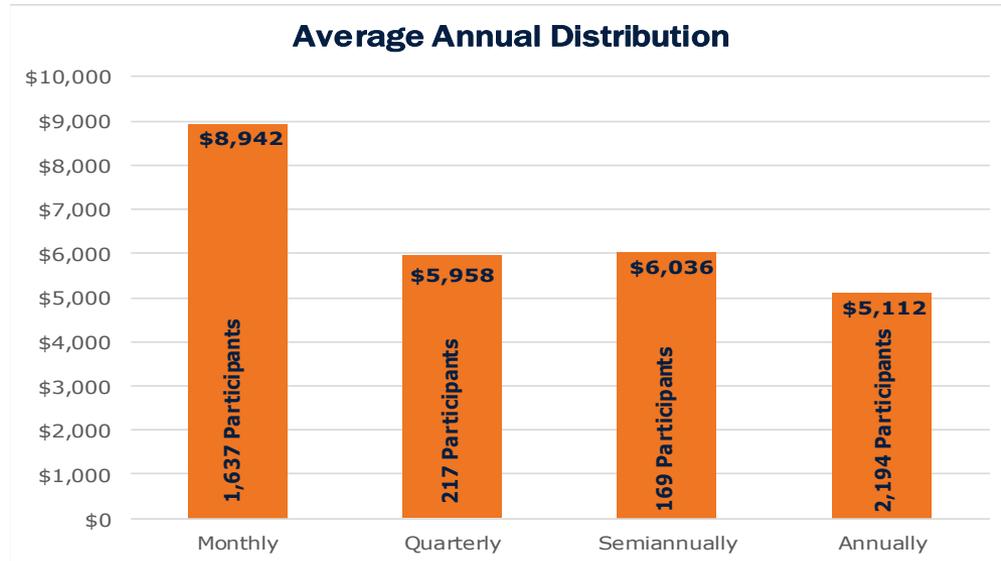


# Participant Distributions

Year Ended December 31, 2018

Distribution Frequency	Participant Count	Distribution Total <sup>1/</sup>	Average Annual Distribution
Monthly	1,637	\$ 14,638,231	\$ 8,942
Quarterly	217	1,292,966	5,958
Semiannually	169	1,020,022	6,036
Annually	2,194	11,214,669	5,112
<b>Total</b>	<b>4,217</b>	<b>\$ 28,165,889</b>	<b>\$ 6,679</b>

23.1% increase to the average defined benefit



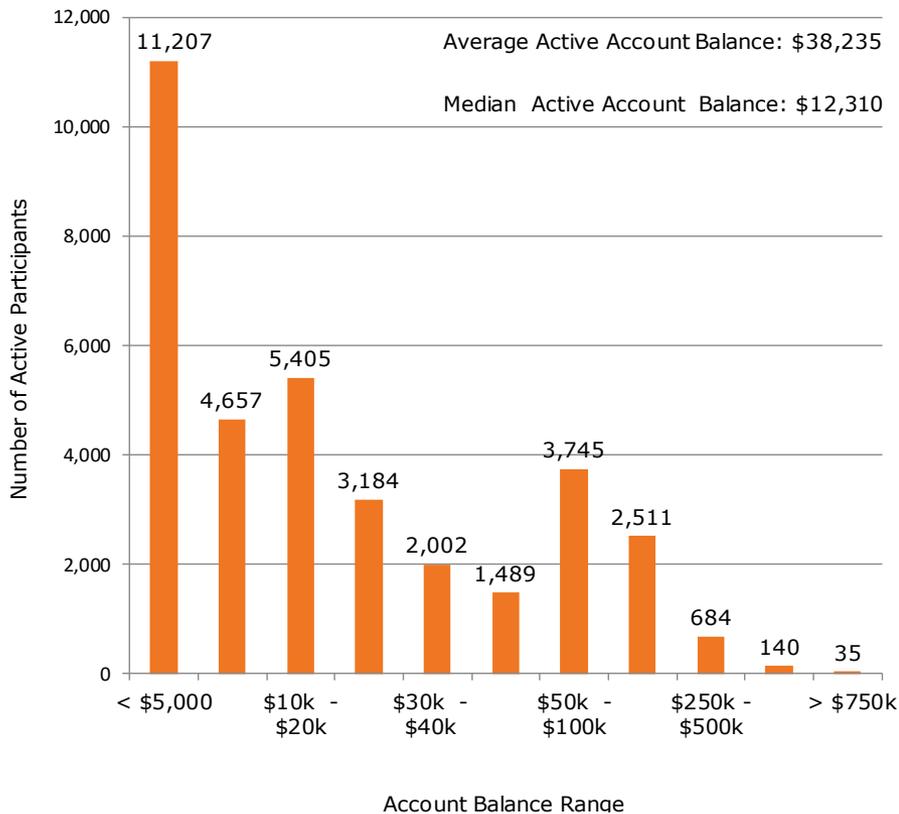
Benefit Plan	Average Total Benefit
Avg. Defined Benefit	\$ 28,880
Avg. Deferred Comp	6,679
<b>Total</b>	<b>\$ 35,559</b>

<sup>1/</sup> Does not reflect \$229M in rollovers out of the Deferred Compensation Plan by 5,225 participants.

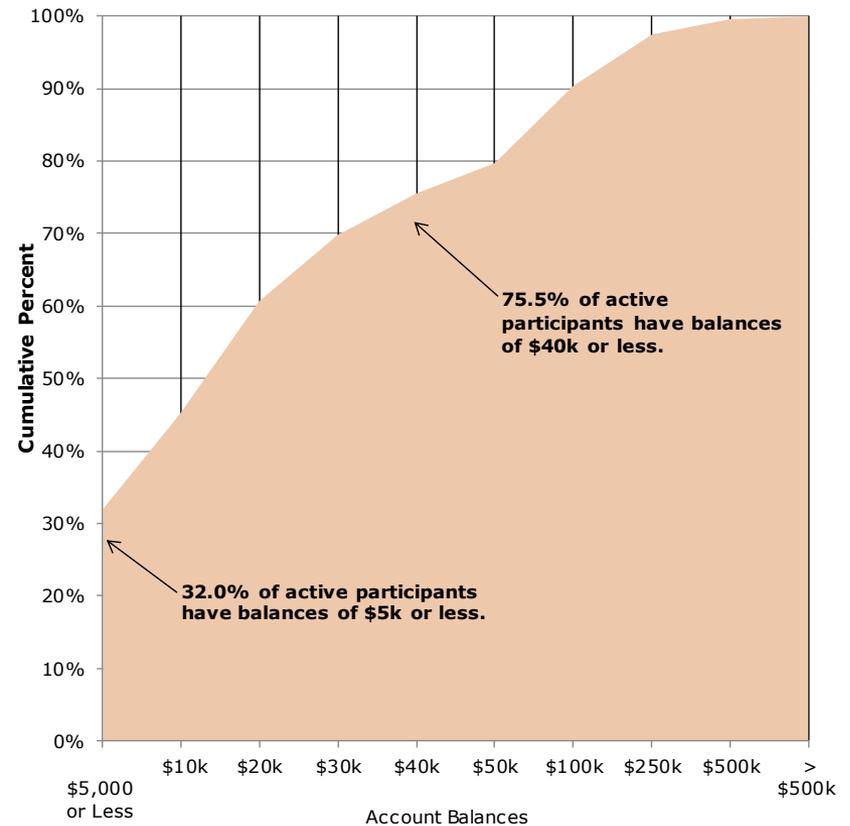
# Participant Account Balance Demographics

as of December 31, 2018

**Number of Active Participants by Account Balance Ranges**

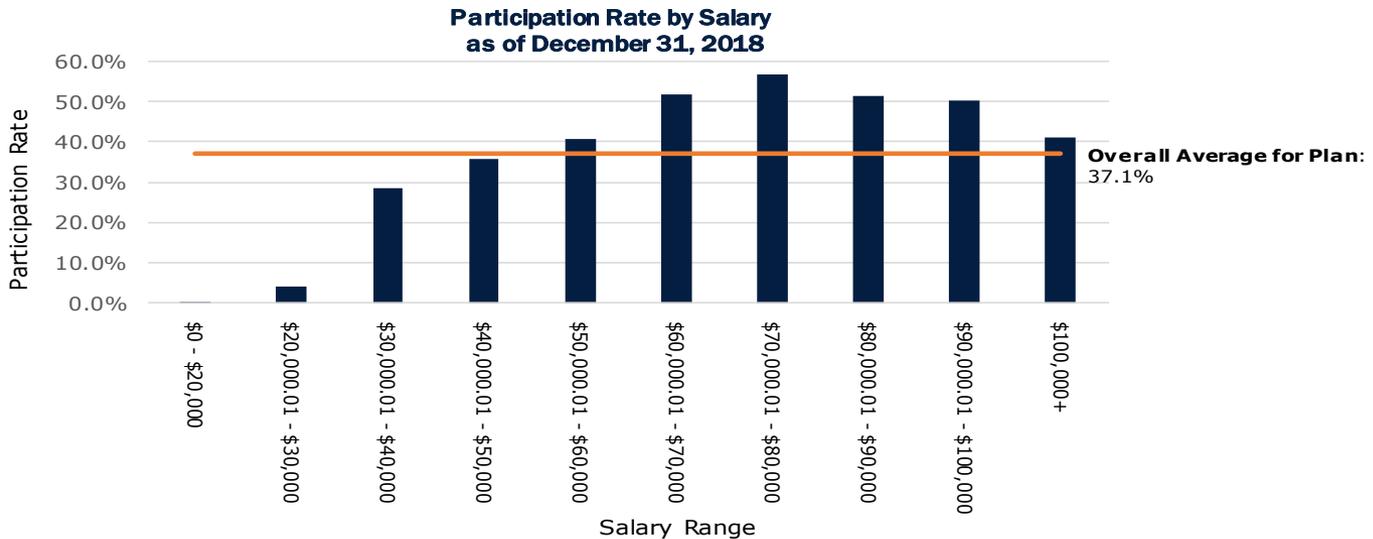


**Cumulative Active Participant Population by Balance Threshold**



# Participation Rate by Salary Range

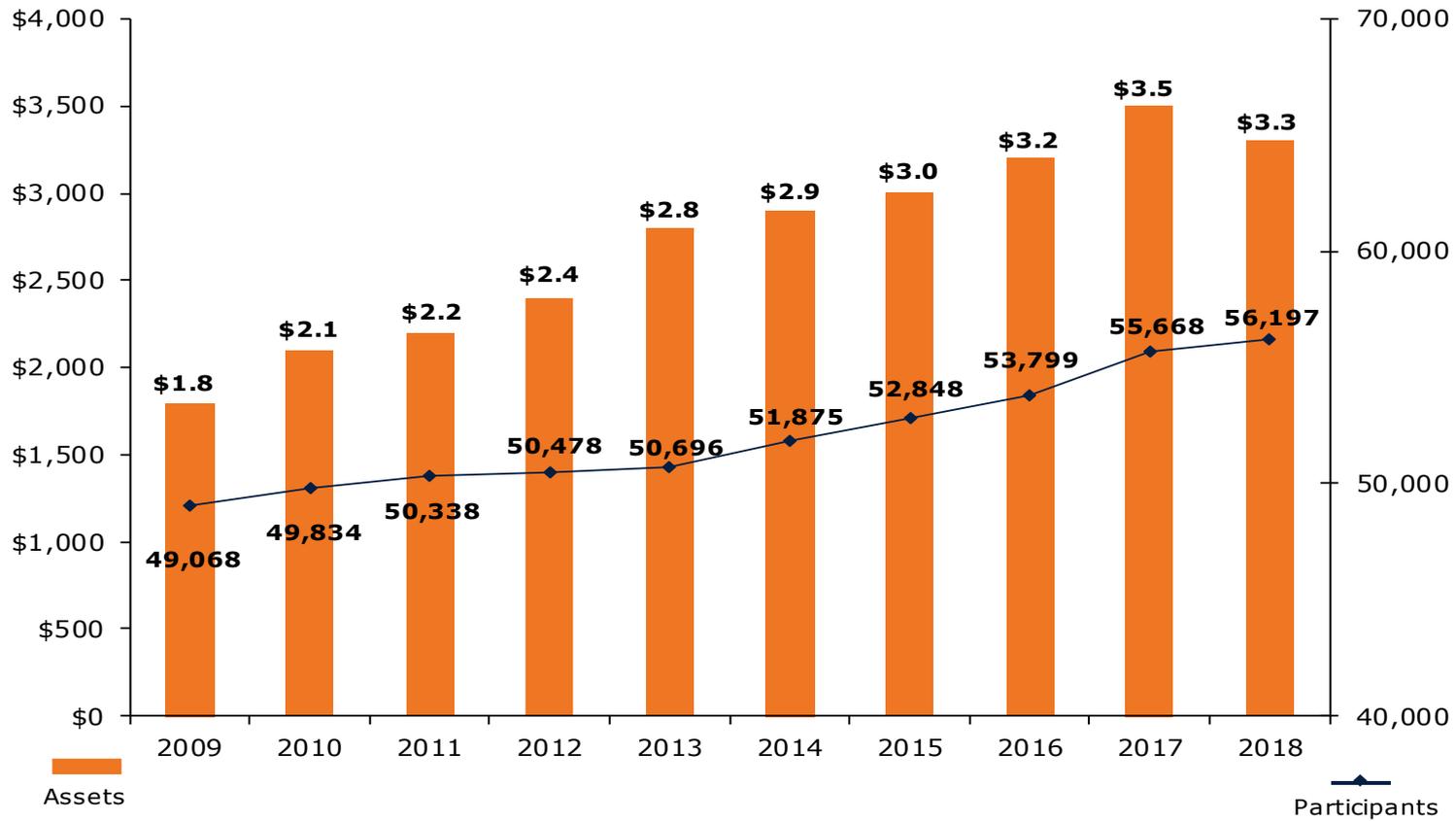
<u>Salary Range</u>	<u>SERS Active Member Count<sup>1/</sup></u>	<u>Deferred Comp Active Participant Count</u>	<u>Participation Rate</u>
≤ \$ 20,000.00	7,369	20	0.3%
\$ 20,000.01 - \$ 30,000.00	5,158	216	4.2%
\$ 30,000.01 - \$ 40,000.00	11,810	3,364	28.5%
\$ 40,000.01 - \$ 50,000.00	17,330	6,208	35.8%
\$ 50,000.01 - \$ 60,000.00	15,533	6,337	40.8%
\$ 60,000.01 - \$ 70,000.00	10,842	5,616	51.8%
\$ 70,000.01 - \$ 80,000.00	8,966	5,077	56.6%
\$ 80,000.01 - \$ 90,000.00	5,902	3,042	51.5%
\$ 90,000.01 - \$ 100,000.00	4,587	2,308	50.3%
\$ 100,000.01 +	6,975	2,871	41.2%
<b>Total</b>	<b>94,472</b>	<b>35,059</b>	<b>37.1%</b>



<sup>1/</sup>Does not include non-participating employers.

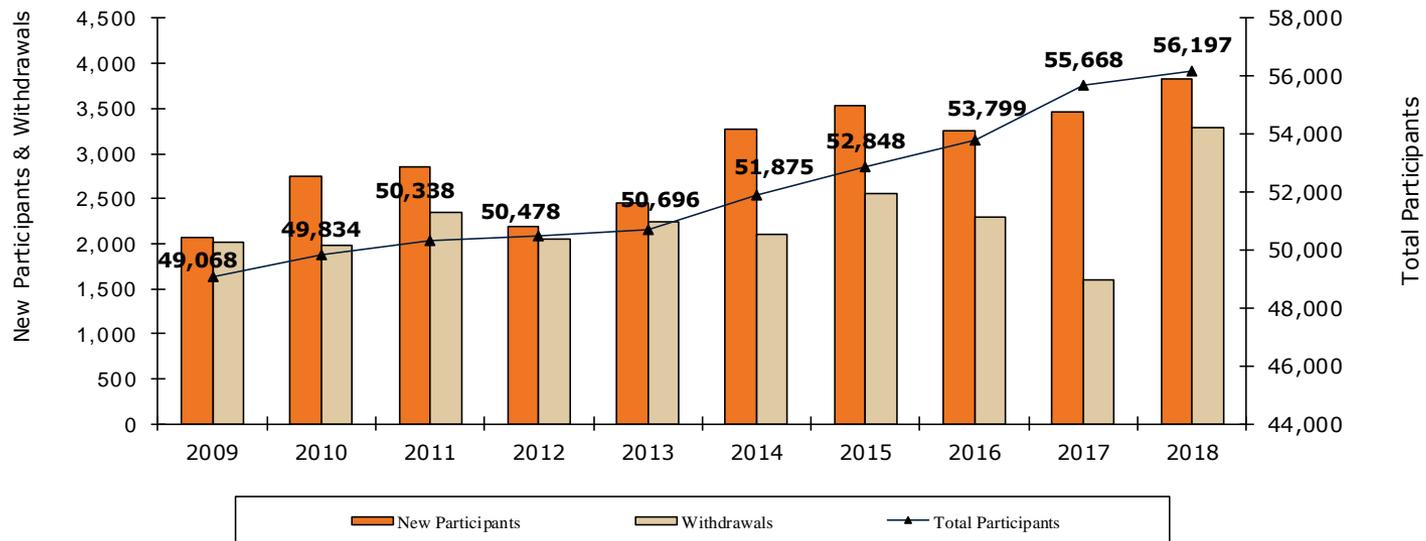
# 10 Year Growth Plan Assets & Participants

(\$ billions)



# Participant Count

Year	New Participants	Withdrawals	Total Participants
2009	2,059	2,021	49,068
2010	2,743	1,977	49,834
2011	2,845	2,341	50,338
2012	2,196	2,056	50,478
2013	2,456	2,238	50,696
2014	3,273	2,094	51,875
2015	3,527	2,554	52,848
2016	3,249	2,298	53,799
2017	3,457	1,588	55,668
2018	3,820	3,291	56,197



# Roth Option<sup>1/</sup>

In August 2012, the Deferred Compensation Plan began offering a Roth option. This option allowed participants to make post tax contributions to a Roth account. In 2014 the program was amended again to allow members to make in-plan conversions of assets to Roth Assets.

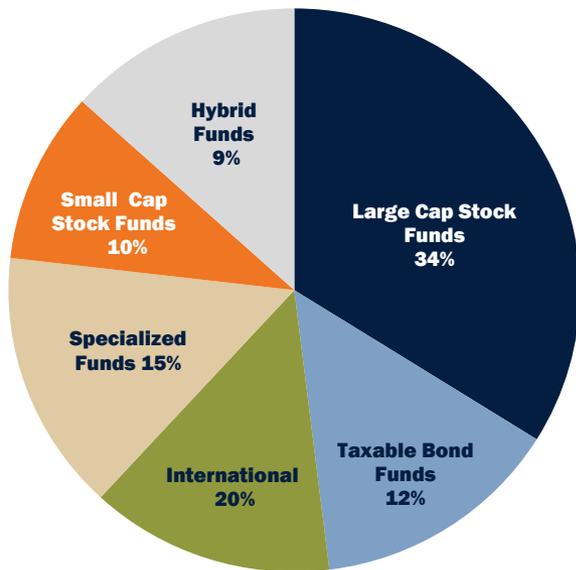
Roth Option Participants		
	Dec. 31, 2018	Dec. 31, 2017
<b>Participants</b>	8,390	6,590
<b>Average Age</b>	43	43
<b>Average Balance</b>	\$12,645	\$6,264
<b>Total Roth Balance</b>	\$53,051,214	\$41,279,953
<b>Total Conversions to Roth</b>	157	100

<sup>1/</sup>According to the 2018 National Association of Government Defined Contribution Administrators' Perspectives in Practice Survey Report of 63 government defined contribution plans, 62% offer Roth accounts.

# Self-Directed Brokerage Account

In 2004, the Deferred Compensation Plan began offering the Self-Directed Brokerage Account (SDBA) through Charles Schwab. Participants have access to approximately 8,000 mutual funds and 500 commission free ETF's through the SDBA. As of December 31, 2018, total asset value for the SDBA was \$109.5 million comprised of 879 different mutual funds. There are 1,445 participants invested in the SDBA, and the average account balance was \$75,783.

Market Value Allocation



Source: Charles Schwab & Co., Inc.

Top 10 Mutual Fund (MF) Holdings	\$ MF Assets	% MF Assets
MORGAN STANLEY INST GBL OPPTY PORT CL A	\$4,009,348	3.91
MORGAN STANLEY INT ADVANTAGE PORT CL A	\$3,858,168	3.77
EDGEWOOD GROWTH RETAIL	\$3,228,616	3.15
PIMCO INCM CL A	\$3,223,942	3.15
PRIMECAP ODYSSEY STOCK	\$3,111,610	3.04
WHITE OAK SELECT GROWTH FUND	\$2,912,484	2.84
RISKPRO PFG EQUITY 30 PLUS FD CL R	\$2,704,293	2.64
RISKPRO PFG AGGRESSIVE 30 PLUS FD CL R	\$2,634,126	2.57
FIDELITY OTC PORTFOLIO	\$2,436,615	2.38
PRIMECAP ODYSSEY AGGR GROWTH FD	\$2,436,061	2.38

# Other Data

As of December 31, 2018



## Defined Benefit Plan

Avg. Active Member Credited Service	11.3
Avg. Active Member Annual Salary	\$59,984
Avg. Age at Retirement for 2018 Retirees	61
Avg. Annual Pension for New Retirees	\$28,492
Avg. Ann. Pen. for Ret. Removed from Rolls	\$16,430
Ten Yr. Active Member Decrease (110,107 to 103,007)	-6.45%
Ten Yr. Retired Member Increase (109,639 to 131,007)	19.49%
Total Option 4 Withdrawal Payouts	\$315 Million
Avg. Option 4 Payout	\$82,678



## Deferred Compensation Plan

Total Active Participant	35,059
Total Non-Active Participants	21,138
Total Participant Count	56,197
Avg. Plan Participant Account Balance	\$59,513
Avg. Surveyed DC Account Balance <sup>1/</sup>	\$53,822
Largest Account Balance	\$1,616,238
Avg. Plan Participant Ann. Contribution	\$3,854
Avg. Surveyed DC Ann. Contribution <sup>1/</sup>	\$4,504
Avg. Number of Investment Options Held	3.08

<sup>1/</sup>2018 National Association of Government Defined Contribution Administrators' Perspectives in Practice Survey Report of 63 individual plans.